

MALACOLOGY.—*A new brackish-water gastropod from Texas (Amnicolidae: Littoridina).*¹ R. T. ABBOTT, U. S. National Museum, and H. S. LADD, U. S. Geological Survey. (Communicated by Julia Gardner.)

During the summer of 1940 the junior author made a study of the brackish-water and marine assemblages of the coastal waters in the vicinity of Rockport and Aransas Pass, Tex. Dredging was done from the bay-head areas near the mouths of streams, where the waters are nearly fresh, through the bays and passes to the Gulf of Mexico, where the waters are of normal marine salinity. The assemblages of mollusks and other benthonic organisms changed radically with the salinity gradient, and it was possible to recognize several distinct facies.² The fauna of the bay-head areas was found to be poor in numbers of species but, locally at least, rich in numbers of individuals. One of the most abundant forms is the species of *Littoridina* described in the present paper as the type of a new subgenus, *Texadina*. This new species was found alive only in water of low salinity, but a few worn or broken shells were dredged at intervals from more saline waters all the way to Aransas Pass at a point less than a mile from the open gulf.

Family AMNICOLIDAE

Genus *Littoridina* Eydoux and Souleyet, 1852

Texadina, n. subg.

Shell very small, minutely umbilicate, ovate-conic, with about five whorls, thin but strong. Whorls moderately convex, increasing regularly in size until the last third of the last whorl, which descends more rapidly, becomes constricted and in many specimens detached. Peristome oval to round. Surface smooth, except for fine growth lines. Suture fine, moderately impressed. Periostacum very thin, translucent gray. Operculum chitinous, paucispiral, thin, translucent. Radula and animal amnicolid-like. Type: *T. sphinctostoma* Abbott and Ladd. Recent, Texas.

The subgenus *Texadina* differs from *Littoridina* s.s. in having the peristome constricted and

more rounded, and in having the last third of the last whorl more rapidly descending.

Littoridina (Texadina) sphinctostoma, n.sp.

Figs. 1-12

Description.—Shell small (adults 2.0 to 3.3 mm in length), solid, ovate-conic to fusiform, very narrowly umbilicate, $5\frac{1}{2}$ to $6\frac{1}{2}$ whorls, translucent gray in fresh material to opaque white in dead specimens. Despite its rather fragile appearance, the shell is thick and strong. Apex moderately pointed, with smooth, glossy nuclear whorls not distinguishable from the postnuclear whorls. Sides of whorls moderately well rounded. Last third of the last whorl in most shells descends more rapidly and becomes constricted to form a relatively small, more rounded aperture than is seen in immature specimens. Peristome adnate or in some shells free from the parietal wall, usually thin and strong, but may be thickened either internally or externally. Umbilicus variable in size and shape, frequently deeply rimate or narrowly rounded. Suture sharp, well impressed. Spiral sculpture absent, except for a weak keel on the periphery of the last whorl in young specimens. Axial sculpture of very weak, widely spaced growth lines. Interior of shell highly polished. Periostacum very thin, smooth, translucent grayish to yellowish, lost in dead specimens.

Operculum very thin, chitinous, transparent yellowish, of size and shape of the aperture, and paucispiral. Radula taenioglossate with denticle

formula: $\frac{3-1-3}{1-1}$; 2-1-3 or 3-1-3; 15 to 16 for the

inner marginal; 9 to 10 for the outer marginal. Animal with moderately short proboscis, moderately long tentacles, with the eyes located at the bases on slight swellings. Color unknown, but black pigment clusters seen above the eye, a vertical band of black-gray on the side of the foot, and a weak dusting of black along a wide band of the mantle edge. Verges unknown.

MEASUREMENTS (mm)

Length	Width	Aperture	Whorls	U.S.N.M. no.
3.0	1.4	0.9 x 0.7	6.0	(holotype, 596722)
3.0	1.4	1.0 x 0.8	5.8	(paratype, 596723)
3.0	1.6	0.9 x 0.8	5.7	(paratype, ")
2.7	1.3	0.7 x 0.6	5.5	(paratype, ")
2.4	1.2	0.7 x 0.6	5.0	(paratype, ")

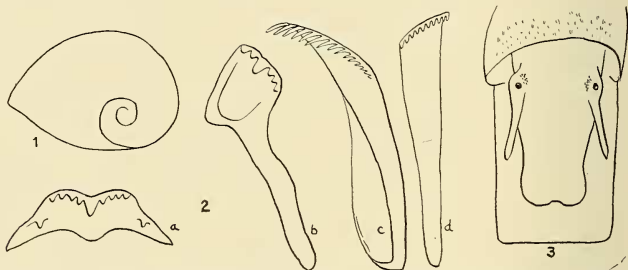
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² A report on this work has been prepared and will be published by the Institute of Marine Science, University of Texas.

The accompanying graphs represent the shell lengths of adults from random samplings of three dredging stations. Shells in which the last part of the body whorl is constricted and descending are considered adult. Means: Station 2, 2.35 mm; station 3, 2.78 mm; station 6, 2.72 mm.

The number of individuals measured at the three stations is respectively 75, 104, and 101.

Types.—The holotype is U.S.N.M. no. 596722 from station 6. Paratypes from station 2 are in the U. S. National Museum (no. 596724), the Museum of Comparative Zoology (Harvard Col-



FIGS. 1-3.—*Littoridina (Texadina) sphinctostoma*, n.sp.: 1, Operculum; 2, radula, a, central, b, lateral, c, inner marginal, d, outer marginal (all greatly magnified); 3, dorsal view of animal ($\times 20$).

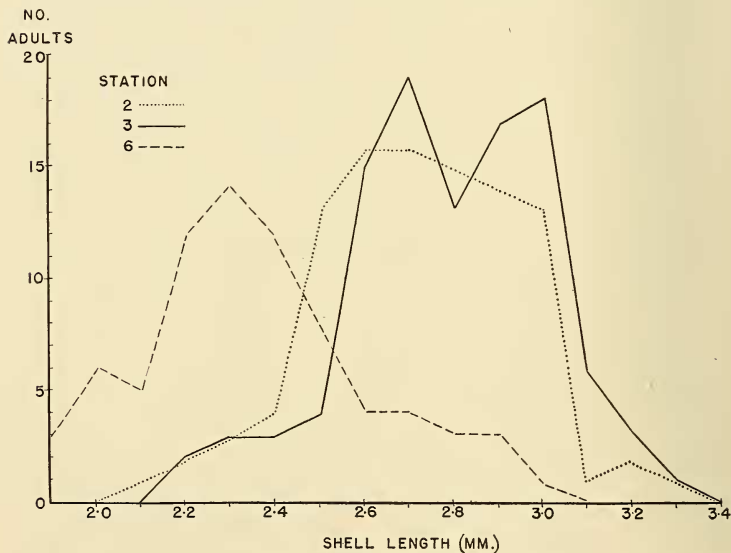
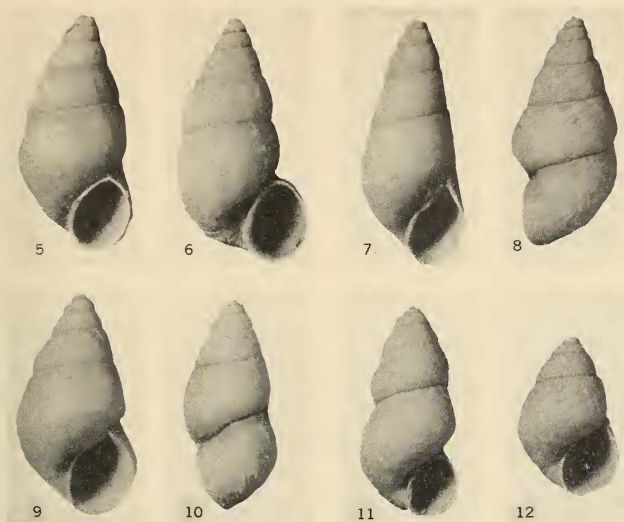


FIG. 4.—Graph of the shell lengths of adults from three population samples.



FIGS. 5-12.—*Littoridina (Texadina) sphinctostoma*, n.sp.: 5, Holotype; 6-12, paratypes. Fig. 12 is an immature specimen. (All $\times 15$).

lege), the Academy of Natural Sciences of Philadelphia (no. 187519), the Museum of Zoology at the University of Michigan, and the Institute of Marine Science, University of Texas. Paratypes from the other stations are in the U. S. National Museum.

Type locality.— $1\frac{1}{2}$ miles north of Webb Point, northwest side of San Antonio Bay, 27 miles northeast of Rockport, Tex. H. S. Ladd, collected July 15, 1940, station 6.

Locality records.—See Table 1 for Texas material. At Grand Isle, La., four specimens were collected by A. G. Humes (U.S.N.M. no. 535757).

Remarks.—The size, texture, and general shape of the shells of *Littoridina sphinctostoma* are not unlike those of *L. tenuipes* Couper from the brackish waters of the Atlantic coast of southeastern United States. Our Gulf of Mexico species, however, is unique in the apertural constriction and the degree to which part of the last whorl descends and becomes detached. The small, oval peristome is rather like that found in *Stenothyra* and *Amphithalamus (Floridiscrobs) dysbatus* Pilsbry. However, *Littoridina sphinctostoma* does not

have the dorsal-ventral flattening of the body whorl of those two groups. Young specimens are of a normal littoridinid shape, although a few have a weak ridge at the periphery of the whorls. As shown in Figs. 5 to 12, there is considerable variation in the convexity of the whorls and the degree to which the last whorl descends or becomes detached from the body whorl. In many specimens the unusual change in the last part of the whorl is preceded by injury in some manner to the shell. In some adults, the spire may be slightly concave, giving the shell a fusiform shape. The shells from station 6 are much more variable in shape and are smaller in average size than those from other stations (see graph).

Ecology.—Living examples of *L. sphinctostoma* were recovered only at station 6, a locality at the head of San Antonio Bay about 40 miles from the open gulf at Aransas Pass. The salinity of the water at this locality, according to Galtsoff's map, is between 7 and 8 parts per thousand (Galtsoff, Paul S., *Survey of oyster bottoms in Texas*, Investigational Report No. 6, Bureau of

TABLE 1.—LOCALITY RECORDS (PARATYPES)

Station no. (H.S. Ladd)	Locality (all Texas)	Depth (feet)	Bottom	U.S.N.M. No.	Number of specimens
2	2 miles northeast of Austwell, head of Hynes Bay	2-2.5	Soft mud	596724	150±
3	3½ miles east of Austwell, Hynes Bay	3.5-4	Mud, sand, and shell	596725	200±
4	2 miles west of Seadrift, San Antonio Bay	2	Sand	596729	2
6	1½ miles north of Webb Point, San Antonio Bay	1.5	Muddy sand	596723 (type)	200±
20	South side of mouth of Copano Bay	3.6	Shell and muddy sand	596730	1
28	Southwest corner of San Antonio Bay	4	Muddy sand and shell	596731	2
39	East-central part of Copano Bay	1.5	Muddy sand and shell	596726	15
48	1½ miles east of Mud Island, Aransas Bay	7	Muddy sand and shell	596727	1
61	North side of main Aransas Pass	1-2	Rock jetty	596728	1

Fisheries, fig. 9, p. 15, 1931). Fresh shells were also dredged at three other localities. Two of these are in Hynes Bay, an arm of San Antonio Bay, at points (stations 2 and 3) where the salinity does not exceed 4 parts per thousand. The third locality where abundant shells were collected is in the exposed part of an oyster reef in Copano Bay (station 39), about 20 miles by airline southwest of the type locality. The salinity at this station may be as high as 19 parts per thousand; though abundant, the shells are not as fresh as those dredged in San Antonio and Hynes Bays.

At the type locality in San Antonio Bay the living snails were dredged from a bottom of muddy sand under 1½ feet of water. Associated with the snails are numerous living specimens of *Rangia cuneata* Gray (with attached barnacles), a few of razor clams (*Ensis minor* Dall), and *Mulinia lateralis* Say; also present are numerous Foraminifera: *Rotalia beccarii* (Linnaeus) was the

most abundant, with a few tests of *R. beccarii* var. *tepida* Cushman, *Nonion pauciloculum* Cushman, *Elphidium gunteri* var. *galvestonensis* Kornfeld, and *Miliammina fusca* (Brady).³ The living faunas at stations 2 and 3, where abundant fresh shells of *Littoridina sphinctostoma* were found, are very similar to the living fauna of the type locality with the addition of ostracodes and numerous specimens of the thin-shelled *Tellina texana* Dall. The bay bottom at stations 2 and 3 is of soft mud under 2 to 3½ feet of water.

One or two shells were dredged from a third locality in Hynes Bay, and from localities in Copano Bay, Aransas Bay, and Aransas Pass. None of these was very fresh and most of them were worn or broken; they appear to have been transported appreciable distances from the place where they lived.

³ Identifications of Foraminifera by Rita Post, of the U. S. Geological Survey.

ORNITHOLOGY.—*Observations on the genera of the swans.* ALEXANDER WETMORE, Smithsonian Institution.

The white species of swans superficially are so alike that there has been difficulty in the identification and application of the older generic names. It is now accepted that the type of the genus *Cygnus* Bechstein, 1803, is *Anas olor* Gmelin, the mute swan, not *Anas cygnus* Linnaeus, the whooper swan, as stated in the fourth edition of the A.O.U. Check-list.¹ In view of this change it is desirable to review the whole question of generic allocation in these interesting

birds. The latest comprehensive treatment of the living swans, that of James L. Peters, to which reference has been made, divides the seven living species between two genera, viz., *Chenopsis* for the black swan of Australia and *Cygnus* for the six remaining forms, of which five are found in the Northern Hemisphere, and one, the black-necked swan, ranges in the southern part of South America.

To outline the discussion, the fourth edition of the A. O. U. Check-list² recognized

¹ See PETERS, *Check-list of birds of the world* 1: 143, 1931; and WITHERBY et al., *Handbook of British birds* 3: 168, 1939.

² *Check-list of North American birds*, ed. 4: 35, 1931.